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DOES RELATIVE THINKING EXIST IN REAL-WORLD SITUATIONS?

A FIELD EXPERIMENT WITH BAGELS AND CREAM CHEESE^{*}

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Abstract

Many experiments show that consumers consider relative price differences even when only absolute price differences are relevant from an economic perspective, a phenomenon that was denoted "relative thinking." These experiments, however, were conducted using hypothetical questions. To test whether the relative thinking bias also exists in real-world situations, a field experiment where subjects could purchase either a bagel or a bagel with cream cheese was conducted. The monetary addition for the cream cheese was kept constant (\$0.20) in both treatments, but the bagel's price varied (\$0.05 in one treatment and \$0.30 in the other). Relative thinking then implies that more people should add the cream cheese when the bagel's price is higher, because the relative price increase for the cream cheese is then smaller. However, the results did not document any relative thinking – more people (in percentage of those who purchase) added the cream cheese when the bagel's price was lower (the difference between the treatments, however, was not statistically significant). A replication of the experiment as a hypothetical-scenario experiment did document relative thinking, suggesting that introduction of financial incentives might alleviate relative thinking.

1. Introduction

In almost every purchase decision, consumers face various alternatives, which usually differ in their characteristics and prices. Even at the same store one could usually find various types of bread, soft drinks, toothpastes, TV sets, and so on, and when considering alternative stores the number of alternatives is even larger. The same applies to services – in most places there are many restaurants to choose from and in each restaurant a variety of items on the menu, for example. Because the choice between differentiated goods or services is so common, it is very important to understand how consumers make these choices.

When a consumer faces two differentiated goods and one is preferred to the other but is also more expensive, utility maximization implies that he should compare the extra utility from using the better good, to the utility he can derive from using the price difference to consume other goods.¹ The relative price difference between the goods should not matter; only the absolute price difference matters. For example, suppose that there are two substitute goods, the price of the less-preferred one is p , and the consumer tells us that he is exactly indifferent between the two goods when the preferred good costs $p+x$. Then, if the price of the less-preferred good changes to q , the consumer should be indifferent between the two goods when the preferred good costs $q+x$.² The reason is that the difference in utility between the two goods is fixed, and so is the utility the consumer can derive by using x dollars towards consumption of other goods.

¹ For simplicity I discuss only two alternative goods, but of course the idea applies also when more alternatives exist.

² This assumes that we can ignore wealth effects, an assumption that can be justified for most goods, since the good's price is negligible compared to the consumer's lifetime wealth.

To illustrate this idea more vividly, suppose that a consumer is indifferent between two flights, where one costs \$209 and leaves at 7 am and the other costs \$249 and leaves at 10 am (the consumer has to wake up a few hours before the flight in order to catch it, and is willing to pay up to \$40 to sleep three more hours). Now, suppose that the consumer, a month later, has to choose again between two flights that are identical except for their departure time, and that anything else remains unchanged, except that the 7-am flight's price is \$627. The consumer should be indifferent between the two flights if the 10-am flight costs \$667, because he is willing to pay up to \$40 for three more hours of sleep.

Product differentiation can come from many sources other than departure time; one simple example is the location in which the goods can be purchased. If one store is more conveniently located than another and the consumer is indifferent between the two when a certain good costs \$20 in one store and \$25 in the other, then he should also be indifferent between the two stores when buying another good that costs \$270 and \$275 in the two stores.³

While normatively, utility maximization and well-defined preferences imply that consumers should exhibit this simple principle, several experiments showed that people often deviate from it and exhibit “relative thinking” – thinking about relative price differences in addition to absolute differences (Azar, 2004).⁴ Tversky and Kahneman (1981), for example, asked people whether they would drive 20 minutes to save \$5 on a calculator when they were going to buy a calculator and a jacket. When the calculator’s price was \$15 and the jacket’s price was \$125, 68 percent of

³ The higher price is in the preferred store, obviously, otherwise the consumer is not indifferent.

⁴ See Azar (2007) for a literature review, a theoretical framework and some further discussion of relative thinking, and Azar (2008) for a discussion why “relative thinking” seems to be a better terminology than “mental accounting,” which was sometimes used to describe the same behavior.

the subjects were willing to drive, but when the calculator's price was \$125 and the jacket's price \$15, only 29 percent wanted to drive 20 minutes to save \$5 on the calculator. This result was later replicated in several other studies. Mowen and Mowen (1986) showed that the effect holds similarly for student subjects and for business managers. Frisch (1993) showed that the effect holds also when only a calculator is being purchased. Ranyard and Abdel-Nabi (1993) varied the price of the second item (the jacket) and obtained similar results, and Darke and Freedman (1993) found that both the percentage discount and the absolute discount have an effect on consumer choice.

Azar (2006a) showed that when subjects can choose to purchase in a store they currently visit or in a remote store, the minimal price difference for which they are willing to travel to the remote store is an increasing function of the good's price. In an experiment that included nine different price-treatments, he quantified this effect and found that people behave on average as if the value of their time is approximately proportional to the square root of the good's price. Azar (2004) showed that consumers' willingness to add for a high-quality good (over the price of a low-quality good) is higher when the good's price is higher. The quality difference was unrelated to the good's price, and therefore, from a normative perspective, the willingness to add for the higher quality should be independent of the good's price. He conducted the experiment both with undergraduate students and with participants in the 2003 North American Summer Meetings of the Econometric Society and showed that economists also exhibit this behavior. Azar (2006b) argues that response of firms to relative thinking of consumers can explain the finding of Pratt, Wise and Zeckhauser (1979), Pan, Ratchford, and Shankar (2001), Sorensen (2000) and Aalto-Setälä (2003) that price dispersion is positively correlated with the average price (or cost), a finding that is otherwise hard to explain from the perspective of search theory.

The experiments described above, however, were conducted without financial incentives.⁵ There are several possible reasons for this. One reason is that many of the researchers cited above are psychologists, and in psychology it is a common practice to conduct experiments without financial incentives.⁶ Another possible reason is that the questions subjects faced were simple questions that did not require a significant amount of effort to answer correctly. Therefore, there is no apparent reason why introducing financial incentives should make responses more accurate or change them in a systematic manner. A third reason is that subjects were asked about their preferences, and since these were unknown to the experimenter, he could not reward the subjects based on how close their responses were to the correct answers (their true preferences).

The issue of whether and how financial incentives affect behavior, and in particular violations of rationality, is a controversial issue among economists and psychologists. Tversky and Kahneman (1987, p. 90), for example, argued that “experimental findings provide little support” for the view that “observed failures of rational models are attributable to the cost of thinking and will thus be eliminated by proper incentives.” Similarly, Thaler (1994, p.155-157, 190) wrote,

⁵ Financial incentives mean that the subject has monetary rewards to answer correctly. Therefore, paying a constant show-up fee is not considered financial incentives. One study that used financial incentives and is worth mentioning is Hossain and Morgan (2006). While their focus was on the perception of shipping charges versus the good’s price and not on the perception of price differences between differentiated goods, their results are somewhat related to relative thinking. They find that for higher-priced items, where the shipping fee is a relatively small percentage of the total price, announcing a high shipping fee in an auction results in higher total revenue than with a low shipping fee. However, this no longer holds for lower-priced goods for which the high shipping fee is a large percentage of the total price. This finding suggests that the percentage of the shipping fee from the total price affects behavior even though a fully-rational consumer should not be affected by this percentage.

⁶ Hertwig and Ortmann (2003), for example, report that in a sample of 106 empirical studies on Bayesian reasoning published in psychology journals, fewer than three percent provided financial incentives.

“To see whether the addition of monetary incentives would improve decision making, numerous researchers, both psychologists and economists, have run parallel experiments with and without incentives... the violations of rationality observed tend to be somewhat stronger in the incentive condition...” Later, Thaler added “Hypothetical questions appear to work well when subjects have access to their intuitions and have no particular incentive to lie,” and afterwards he concluded, “... the assertion that systematic mistakes will always disappear if the stakes are large enough should be recognized for what it is – an assertion unsupported by any data.”

Others, however, oppose this view and suggest that financial incentives are important in order to make experimental results reliable. Textbooks that guide beginners how to conduct economics experiments, for example, suggest “... motivate subjects by paying them in cash... Most of the payment should be sensitively linked to subjects’ actions in the experiment” (Friedman and Sunder, 1994), and argue that “... what people say they would do in hypothetical situations does not always reflect what they actually do” (Friedman and Cassar, 2004).

Several review articles examined the issue of financial incentives, with mixed findings (Jenkins et al., 1998; Camerer and Hogarth, 1999; Hertwig and Ortmann, 2003): in some cases financial incentives affect behavior and choices, while in other cases they do not. Camerer and Hogarth, for example, considered 74 experiments and found cases in which the level of incentives affected behavior, but nevertheless there was no case in which higher incentives made rationality violations disappear.

Given the controversy and the mixed results about the effect of financial incentives, and since the entire literature on relative thinking is based on experiments without financial incentives, it seemed important to test whether the bias of relative thinking exists also when financial incentives are present, or even better, in real-world situations, where decisions make a difference for the subject. Doing so is the purpose of this article.

The article is organized as follows. The next section presents a field experiment that creates a real-world situation where relative thinking matters. People could buy a bagel or a bagel with cream cheese. The bagel's price varied between treatments, but the extra cost of the cream cheese was kept constant, thus creating the possibility of detecting relative thinking. Section 3 describes a hypothetical-scenario counterpart to the field experiment, which was used to reinforce the conclusion about the effect of financial incentives on relative thinking. Section 4 addresses the issue of the potential correlation between the willingness to pay for the bagel and for the cream cheese, and the last section discusses the implications of the findings.

2. A Field Experiment with Bagels and Cream Cheese

The experimental evidence for relative thinking can be stated as follows: when consumers have to choose between two differentiated goods, they consider not only the absolute price difference, but also the relative price difference, even when the latter should be irrelevant. For example, in Tversky and Kahneman (1981), the differentiation comes from the different location of the two stores, and in Azar (2004) it comes from the characteristics of the goods (for example, the time departure of the flight). The aim in this article was therefore to create a setting that will allow subjects to choose between two differentiated products, where the differentiation between the two goods is constant and does not depend on the good's price.⁷ The setting that was chosen for the experiment was to sell bagels: the low-quality good was just a bagel, and the high-quality

⁷ For example, the differentiation between a good with 1-year warranty and a good with 3-year warranty is not independent of the good's price, because the value of the warranty is higher when the good's price is higher. Then relative price differences are relevant and it can no longer be argued that paying attention to them expresses biased decision making.

good was a bagel with cream cheese. Fresh bagels were obtained from a nearby grocery store, and the cream cheese offered was a 1-oz individually-packed serving of Kraft's Philadelphia cream cheese.

The experiment was first conducted by selling bagels with and without cream cheese in the main building of the Kellogg School of Management (at the Evanston Campus of Northwestern University). A few months later, in order to verify the robustness of the results, it was replicated in the lobby of Tech building at Northwestern University. In both places, there are often similar occasions in which students sell various things, so the subjects did not find the bagels' offering unnatural.

In each location, the experiment was conducted on two different days. On one day, a bagel alone was sold for \$0.30, and a bagel with cream cheese was sold for \$0.50. On the other day, bagels were offered for \$0.05, and bagels with cream cheese for \$0.25. Cream cheese alone could not be purchased. The bagels and cream cheese were presented on a table, and the potential buyers could easily observe them before deciding whether and what to purchase. In Kellogg's building the experiment was conducted each day from 8:45 until 15:30, and in the Tech building it was run between 8:45 and 14:00 on both days. Each customer could buy only one bagel (either with or without cream cheese). In total, on the four days, 171 bagels were sold, of them 124 with cream cheese.

Both buildings are among the biggest ones of Northwestern University and each serves a very large number of students. Combined with the fact that the experiment took place on different days of the week, this implies that the chances that the same person purchased bagels on both days are negligible, and the experiment can therefore be thought of as being very close to a between-subjects field experiment.

Let us consider one location, and compare what happens on the two experiment days. The difference between the low-quality and the high-quality good is constant (the cream cheese), and the price difference between the goods is constant (\$0.20). Some consumers may prefer the bagel without cream cheese for dietary or other reasons. Since it is also cheaper, they should purchase a bagel without cream cheese. The proportion of these buyers to the total number of buyers is independent of the bagel's price, so it should be similar on both days. Those who like to have cream cheese on their bagels should compare the gain in utility from having cream cheese to the gain in utility they can get by using the \$0.20 (that they save if they give up the cream cheese) for other purposes. The percentage of people for whom the utility from having additional \$0.20 exceeds the utility from the cream cheese is independent of the bagel's price, and should therefore be similar on both days. Let us denote the number of people who buy a bagel with cream cheese by C and the number of those who buy only the bagel by B . If people do not exhibit relative thinking, it follows from the explanation above that $C/(B+C)$ should be similar on both days.

If people exhibit relative thinking, however, they also compare the \$0.20 required to add cream cheese to the price of the bagel (or to the price of the bagel with cream cheese; this does not change the prediction). Consequently, the \$0.20 seems a larger amount when the bagel is sold for \$0.05 than when it is sold for \$0.30. Therefore, if people exhibit relative thinking, $C/(B+C)$ should be lower when the bagels are sold for \$0.05, because the relative addition for cream cheese is larger in this case. Did people exhibit relative thinking in the experiment? The left columns in Table 1 show that they did not.

Table 1: Experimental Results

	Field experiment (Kellogg)	Field experiment (Tech)	Field experiment (Combined)	Hypothetical scenario
Low-price treatment				
Bagel for \$0.05	15	18	33	31
Bagel with cream cheese for \$0.25	31	64	95	82
Percentage adding cream cheese	67.4%	78.0%	74.2%	72.6%
High-price treatment				
Bagel for \$0.30	7	7	14	18
Bagel with cream cheese for \$0.50	9	20	29	83
Percentage adding cream cheese	56.3%	74.1%	67.4%	82.2%
Statistical tests for difference between the two price treatments				
<i>p</i> -value (logit)	0.217	0.335	0.195	0.049
<i>p</i> -value (probit)	0.213	0.336	0.197	0.048
<i>p</i> -value (OLS)	0.216	0.337	0.196	0.048

Comment: The reported *p*-values are the one-tailed *p*-values of the coefficient of HIGH (a dummy variable which equals 1 in the high-price treatment) in a regression where the dummy variable CHEESE (1 if the subject purchased also cream cheese, 0 if only a bagel) is regressed on HIGH and a constant.

Not surprisingly, we can see that when prices were lower, more people purchased bagels (with or without cream cheese). More important and interesting, however, is the examination of the percentage of people who add cream cheese. The results show that the percentage of buyers who decided to add the cream cheese was in fact higher when the bagel's price was lower - in the opposite direction to the prediction of relative thinking. The percentage difference between the two treatments (67.4% vs. 74.2% in the combined sample), however, is not statistically significant at any conventional level of significance, as the p-values reported in Table 1 indicate. Consequently, the null hypothesis that the bagel's price has no effect on the decision whether to add the cream cheese cannot be rejected. That is, consumer behavior in the experiment is consistent with rational-choice theory. The experiment failed to document a bias of relative thinking, despite the robustness of this bias in experiments involving hypothetical questions.

Replicating the results in the two buildings, in addition to increasing the sample size, has another advantage. The Tech building serves undergraduate and graduate students in various disciplines. The Kellogg building serves mostly MBA students. This implies that on average the income of buyers in the Kellogg building is much higher than that of buyers in the Tech building. The results in both places being qualitatively similar suggest that they seem to be robust to income level variation.

3. The Hypothetical Scenario Counterpart

While the experimental design was chosen in a way that mimics the hypothetical scenarios used in previous studies in which relative thinking was documented, it seemed a good idea to test for relative thinking in a hypothetical scenario equivalent to the field experiment, in order to reinforce the conclusion that the introduction of financial incentives is the reason that relative

thinking disappeared in the field experiment. To do so, 378 undergraduate students at Northwestern University answered one of two versions of the following question (prices in brackets represent the second treatment):

You enter one of the buildings on campus one day and find a person sitting at a table with bagels and cream cheese packs. You can buy there one of the following two options (limited to one bagel per customer):

(1) A bagel for \$0.30 [\$0.05].

(2) A bagel with cream cheese (a 1-oz individually-packed serving of Kraft's Philadelphia cream cheese) for \$0.50 [\$0.25].

Assuming that you must buy one of the two options, which one do you prefer? (Please circle one option)

(1) The bagel only for \$0.30 [\$0.05].

(2) The bagel with the cream cheese for \$0.50 [\$0.25].

Would you purchase your preferred option if you had the choice between buying it and not buying a bagel at all? (Please circle one answer) Yes / No

Among the 378 subjects, 214 indicated that they would purchase their preferred option if they also had the choice not to buy at all. Because the sample in the field experiment includes only people who decided to make a purchase, only these 214 subjects are analyzed, in order to make the results comparable to the field experiment. As the right column in Table 1 reveals, in the high-price treatment 82.2% of the subjects wanted to pay the extra \$0.20 and add the cream cheese, whereas in the low-price treatment only 72.6% wanted to do so. This difference, which is

statistically significant at the 5% level, is consistent with the relative thinking bias found in other hypothetical-scenario studies in the literature. Because the \$0.20 addition for the cream cheese seems more significant in relative terms when compared to \$0.05 than when compared to \$0.30, more subjects choose to add the cream cheese when the bagel's price is \$0.30. The conclusion is that the non-existence of relative thinking bias in the field experiment seems to be the result of the introduction of financial incentives and not of the specific decision problem.

To further verify the robustness of this conclusion, three regressions that include the data from both the hypothetical and the field experiments were run. The dependent variable was CHEESE (1 if the subject purchased also cream cheese, 0 if only a bagel) and the independent variables were HIGH (1 in the high-price treatment, 0 otherwise), REAL (1 in the field experiment, 0 in the hypothetical experiment), and REALHIGH (the value of $REAL * HIGH$). Because HIGH captures relative thinking, the coefficient of the interaction term REALHIGH indicates the difference in relative thinking between the field and the hypothetical-scenario experiments. The coefficient of REALHIGH is negative in all three regressions (suggesting more relative thinking in the hypothetical experiment than in the field experiment), and its one-tailed p-value is 0.045 in the OLS regression, 0.041 in the logit regression, and 0.042 in the probit regression. These results further support the conclusion that there is a statistically significant difference in relative thinking behavior between the field experiment and the hypothetical-scenario experiment. This suggests that introducing financial incentives eliminates the relative thinking behavior, at least in the context explored in this experiment, of choosing between two differentiated goods.

4. The Correlation between Willingness to Pay for the Bagel and for the Cream Cheese

One issue that might affect the results is the sample selection in the two price treatments. The average willingness to pay (WTP) for the bagel of people who make a purchase when the bagel's price is \$0.05 is lower than the average WTP of purchasing customers when the bagel's price is \$0.30. This is because the purchase decision indicates that the WTP is higher than the price, and a higher price then implies a higher average WTP. The failure to detect relative thinking in the field experiment could, theoretically, occur even if people do exhibit relative thinking, if there is an opposite effect that comes from the correlation between the WTP for the bagel and the WTP for the cream cheese. In particular, if this correlation is negative, then buyers in the low-price treatment (who have on average lower WTP for the bagel than buyers in the high-price treatment as explained above) have a higher average WTP for the cream cheese, and this should result in a larger tendency to add the cream cheese in the low-price treatment – in opposite direction to the relative thinking effect.

Fortunately, the data from the hypothetical-scenario question can assist us in ruling out this possibility, using the responses to the question “Would you purchase your preferred option if you had the choice between buying it and not buying a bagel at all?” In total, we have eight different possible outcomes, because there are three variables, each with two possible values. A person could prefer a bagel only (B) or a bagel with cream cheese (C); he could prefer purchasing (P) or not (N) if he had the option; and he might be in the high-price (H) or low-price (L) treatments.

Obviously, people in group C (i.e., those who added cream cheese) have on average a higher WTP for the cream cheese than people in group B, because a person should choose to add the cream cheese if and only if his WTP for it is higher than \$0.20, since the cost of adding the cream cheese in all treatments is \$0.20. Thus, the dummy variable CHEESE, which equals 1 if the

subject added cream cheese, is a proxy for the WTP for the cream cheese, because the two are positively correlated. We can now turn to creating a proxy for the WTP for the bagel by using the subject's decision of P vs. N and his treatment (H vs. L). The lowest average WTP belongs to those who did not want to make a purchase even at the low price (N & L). The next lowest WTP is in the group that did not purchase at the high price (N & H). Next we have those who purchased at the low price (P & L), and the highest average WTP belongs to those who purchased at the high price (P & H).

For example, if we focus on those in group B and assume that the WTP for a bagel is distributed uniformly over the range \$0 - \$0.50, we get:⁸ $AWTP(N \& L) = E(WTP \mid WTP < \$0.05) = \$0.025$; $AWTP(N \& H) = E(WTP \mid WTP < \$0.30) = \$0.15$; $AWTP(P \& L) = E(WTP \mid WTP > \$0.05) = \$0.275$; and $AWTP(P \& H) = E(WTP \mid WTP > \$0.30) = \$0.40$. While obtaining these specific values depends on the assumption about the distribution of the WTP, the ranking between the four groups applies for any distribution of the WTP. Therefore we can define a proxy variable AWTP, which equals 0 for (N & L), 1 for (N & H), 2 for (P & L) and 3 for (P & H), and these ordinal values capture the average level of the WTP for the bagel in the four groups.

What is left to be done is to examine whether there is a statistically significant negative correlation between AWTP and CHEESE. Regressing CHEESE on AWTP (and a constant) shows that the correlation is in fact positive, and is not statistically significant (the *p*-value of the coefficient of AWTP is between 0.298 – 0.302 in logit, probit, and OLS estimations). Therefore, the hypothesis that in the field experiment there exists relative thinking which is not evident due

⁸ AWTP stands for “average willingness to pay.” $E()$ means the expected value of the expression in parentheses. The symbol \mid means “conditional on.” The conditioning is a straightforward result of the decision to purchase or not and the price treatment.

to a counter-effect that results from negative correlation between the WTP for bagels and the WTP for cream cheese is not supported by the data.

5. Conclusion

A very common consumer decision problem is the choice between differentiated goods or services, making it important to understand how consumers make these choices. The evidence on relative thinking suggests that when consumers consider purchasing one of two differentiated goods, both the absolute price difference and the relative price difference affect their decision. Similarly, as Tversky and Kahneman (1981) and others showed, when consumers consider whether to make a certain effort to save a certain amount on a good they want to buy, they are affected not only by the absolute savings but also by the savings relative to the good's price, even though the latter should be irrelevant. Many studies show this behavior, but all of them are based on hypothetical questions and do not involve financial incentives to make correct decisions.

To examine whether the relative thinking bias is robust to the introduction of financial incentives, a field experiment was conducted. Bagels served as a low-quality good, and bagels with cream cheese served as a high-quality good. The extra amount needed in order to purchase the high-quality good was kept constant, whereas the bagel's price varied across treatments. According to the relative thinking behavior, the percentage of customers who choose to buy bagels with cream cheese should be lower when the bagel's price is lower (because the extra cost of the cream cheese relative to the bagel's price is higher). In two different replications of the experiment, however, the opposite result was obtained: a higher percentage of buyers added the cream cheese when the bagel's price was lower. The difference in the proportion of buyers adding the cream cheese in the two treatments, however, is not statistically significant. Consequently, the

results in the field experiment are consistent with the prediction of rational-choice theory (which predicts that the percentage of consumers who add the cream cheese should be similar in both treatments), but not with the prediction of relative thinking.

To verify that the disappearance of relative thinking in the field experiment is due to the financial incentives that were introduced and not to other differences between the consumer decision and decisions used in previous studies (which documented relative thinking in hypothetical questions)⁹, a hypothetical-scenario version of the experiment was run. In that version, relative thinking was documented, suggesting that indeed the introduction of financial incentives seems to be the reason for the disappearance of relative thinking.

Do the results imply that relative thinking is a phenomenon that only occurs with hypothetical questions, but disappears with financial incentives? This is an intriguing question. It will be surprising to find that this is the case, given that many experiments with hypothetical questions found a significant behavior of relative thinking, and given that Camerer and Hogarth (1999) concluded, based on 74 experiments, that “no replicated study has made rationality violations disappear purely by raising incentives.” The field experiment reported above, however, seemed to make the rationality violation of relative thinking disappear by introducing incentives.¹⁰

⁹ In the field experiment reported in this article, the cream cheese is a complementary good to the bagel, and a bagel with cream cheese is superior (for most people) to a bagel without cream cheese. In much of the earlier literature the relative thinking is documented when the consumer has the option to save money on the purchase of a good by going to a cheaper store. This is a different context. However, Azar (2004) observes relative thinking also in consumer decisions involving differentiated goods (as is the case here).

¹⁰ Since subjects purchase the bagel with real money, this provides them incentives to make correct choices (choices that reflect their true preferences); this is also the purpose of providing financial incentives in lab experiments. One advantage of field experiments over lab experiments, however, is the higher degree of external validity: it is easier to

Moreover, the results were replicated in two different locations and the hypothetical version showed that relative thinking does exist in this decision problem without financial incentives. Nevertheless, it might be too early to conclude that relative thinking disappears with the introduction of financial incentives, because so far this is the only study that tests for relative thinking when presenting financial incentives. Possibly the small amounts of money involved in the purchase decision or the very cheap price of the bagel in the low-price treatment (\$0.05) affect decisions in a certain way, and somewhat different results will be obtained in experiments involving larger amounts of money. I hope that this article will encourage others to design additional experiments that test for the effects of financial incentives on relative thinking, and will thus promote our knowledge of these effects further.

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make the case that the results carry over to natural economic situations when the experiment is in such situations than when it is in an artificial lab environment. On the other hand, in field experiments it is harder to control the experimental conditions than it is in the lab.

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